



DEPARTMENT OF ENVIRONMENTAL SERVICES

Eric S Takamura, Ph.D., P.E., Director
Kenneth A. Shimizu, Deputy Director

DUTIES, AND FUNCTIONS

The Department of Environmental Services is responsible for the City's wastewater, storm water and solid waste disposal services. The department operates and maintains sewer lines, treatment plants, wastewater pump stations, land fills, refuse pickup and disposal; is responsible for the chemical treatment and pumping of cesspools; and manages the city's storm water permit programs.

MISSION

To protect public health and the environment by providing effective and efficient management of the wastewater, storm water and solid waste disposal systems for the City and County of Honolulu.

HIGHLIGHTS

Administrative Support: Wastewater Sewer Service Charge revenue remained stable at approximately \$112 million, and the wastewater program continued to meet all revenue bond and financial requirements.

The department's business process improvement program is continuing to make steady progress and produce results. A new training curriculum based on peer group learning has been developed that has reached about a third of our front-line supervisors. Automotive repair and fleet optimization is improving with the establishment of a service level agreement and a fleet manager function. New work practices are being implemented to support full implementation of the computerized maintenance management system. Other on-going Change program initiatives include an information technology master plan, asset management program development, leadership development program, succession planning, and external and internal communication.

ENV 2005 IT Enhancement: During fiscal year 2005 the Department upgraded or purchased 81 desktop computers, two laptop computers for field use and replaced 22 monitors. We also implemented an integrated document management system (Xerox Docushare) for Office of Administrative Support (OAS), Environmental Quality (EQ) and Refuse. EQ has contracted for a customized software/database to track pretreatment device inspections, permitting and enforcement. The Wastewater Customer Service and Investigation Unit upgraded to a hands-free telephone system to increase efficiency and better serve the public.

NACWA's Peak Performance Awards

This program recognizes NACWA member agency facilities for excellence in wastewater treatment as measured by their compliance with their National Pollutant Discharge Elimination System (NPDES) permits. There are three types of awards within the Peak Performance Awards program:

Platinum Awards pay special tribute to agency facilities that have received Gold Awards for five consecutive years.

Gold Awards honor treatment works that have achieved 100 percent compliance with their NPDES permit for an entire calendar year.

Silver Awards recognize facilities that have received no more than five NPDES permit violations per calendar year.

2004 Gold Awards

Honouliuli Wastewater Treatment Plant

Kailua Regional Wastewater Treatment Plant

Waianae Wastewater Treatment Plant

2004 Silver Awards

Sand Island Wastewater Treatment Plant

Wahiawa Wastewater Treatment Plant

Collection System Maintenance: During this fiscal year, the division cleaned and flushed 617.86 miles of sewer line, cleaned 272 laterals and inspected 24,866 manholes. Television camera inspections were done on 101,422 feet of sewer line. Repairs were done to 103.5 feet of sewer, and 277 feet of laterals and extensions were installed. Five manholes were adjusted to grade and 80 treated for rodent/roach control.

Environmental Quality: The Storm Water Quality (SWQ) Branch manages, plans and designs projects for structural best management practices at storm drain outlets along the Waikiki Coast, and selected outlets in the Ala Wai Canal, Kuapa Pond, Kaelepulu Pond and Salt Lake. The branch continued managing several projects in Salt Lake, including maintenance dredging of waterways, the \$97,000 EPA-funded Phytoremediation project to reduce nutrients and other pollutants in Salt Lake, the joint City-Army funded



Figure 1: Truck tire washing at the Pearl City Wal-Mart construction site.



Figure 3: Public Service Announcement shown in selected Consolidated Movie Theaters

\$200,000 Aliamanu Crater - Salt Lake sediment study. The SWQ branch also increased enforcement actions. During fiscal year 2005, the branch responded to 300 complaints of illegal discharges, issued 52 informational letters, 153 written warnings, 16 notice of violations, and collected a total of \$35,000 in fines. As recommended in a September 2004 Department of Health and EPA evaluation of the SWQ program, Inspections of industrial sites and construction activity were increased significantly.

Community Relations/Outreach: The Department's storm water National Pollutant Discharge Elimination System (NPDES) public education program continued using partnerships between government, businesses, and the communities to leverage resources to reduce pollution of coastal waters. The City's public outreach program is featured on EPA's web site. The SWQ Branch has increased its efforts with training and partnerships with schools in Aiea, Waipahu and Campbell High School Districts.

The Department continued its general public outreach, using public service announcements, including a movie slide shown at Consolidated Theaters and a radio spot featuring Mayor Mufi Hannemann urging citizens to "Help protect our waters ... for life!"

As part of the Department's targeted outreach efforts in the Ala Wai Canal Watershed, it teamed with the Ala Wai Watershed Association and other agencies and groups for an Earth Day event at Fort DeRussy. Several agencies set up booths, and the Department of Land and Natural Resources had a fish

replenishment release of Mo'i in the Ala Wai Canal, as well as leading an armored catfish eradication effort in Manoa Stream.

During fiscal year 2005, the Regulatory Control Branch issued 813 Industrial Wastewater Discharge Permits requiring grease interceptors and/or pretreatment devices (silver recovery units, oil water separators, etc.). The Branch also performed 95 plan reviews on building permit projects proposing to install grease interceptors. During the fiscal year, Regulatory Control has increased enforcement activities and issued 1,501 Verbal Warnings, 254 Letters of Warning, and 11 Notice of Violations. The Regulatory Control Branch continued with implementation and outreach on Grease Interceptor Program Compliance. Various community groups, neighborhood boards and tradeshow were the primary focus, to educate local industries as well as the public about responsible use of the city sewer system. The Water Quality Laboratory (WQL) performs diversified analytical procedures to monitor industrial wastewater going into the City's treatment system, the discharges from the City's eight wastewater treatment plants, and the receiving water environment. Laboratory analyses include measurements of physical/chemical properties, including metals and pesticides; microbiological examination; and biological assays. For fiscal year 2005, 430,630 analyses were conducted on 33,300 samples. In addition to providing sampling and analytical capabilities to support the City's environmental monitoring programs, WQL also assisted EPA in the development of methods to assess biological toxicity. Whole Effluent Toxicity (WET) tests assess the potential toxicity of treated wastewater by exposing dilutions of the wastewater to biological organisms and observing for negative effects. Hawaii possesses unique biological species, and this results in state-specific WET tests. Since November 2004, the Biology Laboratory of the WQL entered into a contract with the Navy and the Marine Corps to conduct WET tests.

The Monitoring and Compliance Branch continues with the second phase of the Reduction of Odor and Sound Emissions (ROSE) program. ROSE is a program to address the odor and noise issues from our wastewater treatment plants, collection systems and pump stations. The Branch has also initiated a pilot test program for an emerging wastewater treatment technology called mem-



Figure 2: Outreach booth at 2005 Hawaii Business Expo

brane bioreactor (MBR). A fifth system was added to the test program. The pilot test is in its final phases and should be completed by the end of 2005. The Branch has also updated the Honouliuli Wastewater 301(h) waiver permit reapplication. This application would allow discharge of primary treated effluent into the marine environment.

Refuse Collection and Disposal: The Refuse Division plans, directs and coordinates programs for solid waste management for the City and County of Honolulu. It provides refuse collection services and an integrated management system for waste reduction and disposal of solid waste, including recycling, incinerating at waste-to-energy facilities, and land filling. It operates and maintains refuse transfer stations, refuse convenience centers, and sanitary landfills.

H-POWER has processed in excess of 9.4 million tons of municipal solid waste since commencing operations in 1990. Total processed for fiscal year 2005 alone is 623,272 tons.

Total refuse-related expenditures for fiscal year 2005 were \$110,282,023 compared to the previous year's total of \$107,703,114.

Recycling: The City continued its initiatives in recycling refuse, green waste, biosolids and wastewater. On average, 10.3 dry tons of biosolids from the Honouliuli Wastewater Treatment Plant were processed into compost. The Honouliuli Water Reclamation Facility distributed an average of 7.2 million gallons per day of recycled water.

PUMP STATION STATISTICS

2004-2005

<u>PUMP STATION</u>	<u>MIL GALS PUMPED</u>	<u>AVG MGD</u>
AALA	23.990 .....	.066
ALA MOANA #1	1,891.098	5.181
ALA MOANA #2	15,250.850	41.783
ALALA	67.480 .....	.185
ALIAMANU #1	186.074 .....	.510
ALIAMANU #2	84.377 .....	.231
ALII BLUFFS	14.950 .....	.041
AWA STREET	1,117.894	3.063
BEACH WALK	4,500.259	12.329
COCONUT GROVE	60.180 .....	.165
ENCHANTED LAKE	112.520 .....	.308
EWA	533.398	1.461
EWA BY GENTRY	172.482 .....	.473
FORT DERUSSY	744.661	2.040
GRANDVIEW*	12.600 .....	.035
HALAWA	751.515	2.059
HALEKOU	24.350 .....	.067
HART STREET	4,228.140	11.584
HEEIA	92.120 .....	.252
HOMELANI	9.741 .....	.027
KAHALA	1,574.812	4.314
KAHALUU	59.570 .....	.163
KAHALUU HSG	53.920 .....	.148
KAHANAHOU	162.960 .....	.446
KAHAWAI STREAM	109.300 .....	.299
KAILUA HEIGHTS	673.100	1.844
KAILUA ROAD	710.110	1.945
KAMEHAMEHA HWY	2,175.990	5.962
KANEOHE BAY #2	67.720 .....	.186
KANEOHE BAY #3	62.630 .....	.172
KANEOHE BAY #4	15.650 .....	.043
KANEOHE BAY #5** .....	.067	0
KEMOO FARM*	19.200 .....	.053
KUKANONO	19.437 .....	.053
KULIOUOU	145.232 .....	.398
KUNIA	611.669	1.676

<u>PUMP STATION</u>	<u>MIL GALS PUMPED</u>	<u>AVG MGD</u>
LAENANI	43.370 .....	.119
LAKEVIEW	69.433 .....	.190
LUALUALEI	292.191 .....	.801
MAKAKILO*		
MAUNAWILI ESTATES	33.770 .....	.093
MAUNAWILI PARK	68.620 .....	.188
MILILANI #19	32.392 .....	.089
MIOMIO	24.890 .....	.068
MOANA PARK	299.166 .....	.820
NAKULA*		
NANAKULI	21.048 .....	.058
NIU VALLEY	620.771	1.701
OHAI PLACE*		
PACIFIC PALISADES	184.783 .....	.506
PAIKO DRIVE***	0	0
PEARL CITY	4,002.700	10.966
PUBLIC BATHS	35.290 .....	.097
PUNAWAI	83.980 .....	.230
UWALU *		
WAIAWA	22.124 .....	.061
WAIKALUA	66.810 .....	.183
WAIKAPOKI	317.700 .....	.870
WAIMALU	2,056.173	5.633
WAIPAHU	3,496.787	9.580
WAIPIO	171.127 .....	.469
WEST BEACH #1	77.521 .....	.212
WEST BEACH #2	63.278 .....	.173
WEST LOCH EST	186.330 .....	.510
WEST LOCH FRWY	125.188 .....	.343
TOTALS	50,870.264	****139.371

*No flow meters. Million Gals Pumped and Average MGD estimated.

**Not on line

***No flow meter. Flows to Niu Valley

****Flow data does not match treatment totals due to wastewater flow through multiple pump stations in route to treatment plant.

TREATMENT PLANT PERFORMANCE 2004-2005

<u>TREATMENT PLANT</u>	<u>MIL GALS TREATED</u>	<u>AVG MGD</u>
Honouliuli	8,896.407	24.374
Kahuku	67.447	185
Kailua	5,583.574	15.297
Paalaa Kai	30.089 .....	.082
Sand Island	24,187.358	66.267
Wahiawa	713.530	1.955
Waianae	1,266.812	3.471
Waimanalo	229.572 .....	.629
Totals	40,974.789	****112.260

KAILUA REGIONAL WWTP

The department is working with Guernsey & Co. to develop an Energy Performance Contract, which will help to reduce the plant's dependency on fossil fuel and ensure we remain viable. Cogeneration (Co-Gen) feasibility studies have shown a potential to realize savings after some modifications. The two leading types of Co-Gen system are the Energy Performance Contract, which sells back excess power (electricity) to HECO and Shared Savings Contract, in which the City pays the contractor a portion of the power (electricity) savings we have per year. Since there will be pros and cons with each option, the Request For Proposal (RFP) will leave the decision to the winning bidder to decide on the type of contract which will be most beneficial to both parties.

WASTEWATER REVENUE 2004-05 FISCAL YEAR

Sewer Service Charges	\$112,082,373
WW System Facility Charges	\$5,037,304
Other Revenue	\$2,077,213
Total	<u>\$119,196,890</u>

During the fiscal year FY2005, construction contracts for eight wastewater projects were completed and closed out. The total of the final costs for these projects was \$3,649,287.62. Thirty-eight (38) projects with a total contract value of \$351,313,521.76 were still under construction, or construction contracts were still open, as of June 30, 2005.

Wastewater Construction Projects Completed

• Aeloa Street Emergency Manhole Repair	\$13,606.52
• Kailua Wastewater Treatment Plant Influent Bar Screen Enclosure	349,331.21
• Kalihi Valley Sewer Line Spot Repair	19,981.00
• Kapiolani Boulevard Sewer Siphon Reconstruction at Manoa/Palolo Stream	740,089.00
• Rehabilitation of Sewer Lines Near HECO Honolulu Power Plant	269,048.11
• Republican Street Emergency Sewer Line Replacement	256,930.00
• Sand Island Wastewater Treatment Plant Interim Chemical	1,514,016.78
• Sand Island Wastewater Treatment Plant Refurbish Gravity Thickener No. 1	486,285.00
Total:	<u>\$3,649,287.62</u>

Wastewater Construction Project Contracts On-Going

• Ahuimanu Wastewater PTF Headworks Modification	\$658,362.00
• Ala Moana Wastewater Pump Station Force Main Emergency Repair	1,885,000.00
• Ala Moana Wastewater Pump Station Modifications	18,144,000.00
• Aumoe Street Sewer Line Replacement (SMPR No. 19)	586,387.00
• Fort Weaver Road/Hapalua Street Sewer Repair	70,456.90
• Fuel System Modification at Honouliuli WWTP, Waianae WWTP, Laenani WWPS	151,950.00
• Halekoa Drive & Palipaa Place Sewer Line Rehabilitation	231,700.00
• Hamakua Drive Emergency Repair	1,100,000.00

• Hart Street WWPS Alternative	23,053,426.48
• Hart Street WWPS Force Main Replacement	20,255,500.00
• Honouliuli WWTP Centralized Odor Control Modification	218,450.93
• Honouliuli WWTP Expansion Phase I, Part A	19,285,608.97
• Honouliuli WWTP Solids Handling Facility Interim Modifications	1,891,810.46
• Kahaluu Housing WWPS and Force Main	2,804,935.39
• Kahuanani Street Sewer Replacement (SMPR No. 85)	1,731,198.25
• Kainehe Street, Hamakua Drive and Keolu Drive Reconstruction Sewer	25,913,108.89
• Kalaheo Avenue Reconstructed Sewer (Phase 1)	18,346,919.68
• Kalaheo Avenue Reconstructed Sewer (Phase 1, Emergency Work)	17,423,934.00
• Kamehameha Highway Trunk Sewer Reconstruction, Mililani	809,987.81
• Kaneohe Bay Sewers ID No. 275	4,049,675.43
• Kaneohe/Kamehameha Highway Reconstructed Sewer	1,148,800.00
• Kaneohe Wastewater PTF Demolition Plan, Phase 1	745,650.00
• Kapiolani Boulevard Sewer Emergency Repair	1,768,625.96
• Kiwila Street/10 th Ave Reconstructed Sewer SMPR (SMPR 11)	217,220.00
• Laie Wastewater Collection System Expansion Phase I	7,067,951.00
• Magazine Street Sewer Line Replacement Rehabilitation (SMPR 3)	924,300.00
• Miscellaneous WWTP & WWPS Projects – Kamehameha Highway WWPS:	
Replace Concrete Cylinder Pipe	1,953,300.00
• Niu Valley WWPS Force Main Emergency Repair	700,000.00
• Pacific Palisades WWPS Access Road Emergency Repair	372,352.44
• Public Baths WWPS Modification	1,882,791.00
• Sand Island Parkway Wastewater Pump Station Modification	994,174.00
• Sand Island WWTP UV Disinfection Facility and Effluent Pump Station	80,762,209.00
• Sand Island WWTP Modification Unit I, Phase 2A	92,974,880.21
• Sand Island WWTP Refurbish Gravity Thickener	608,843.00
• Wahiawa WWTP Effluent Reuse and Reservoir Outfall Adjustment (Transferred to ENV)	
• Waianae WWTP Remove Concrete Platform Chlorine Contact Tank, Phase 1	68,891.85
• Waianae WWTP Reroute Gravity Sewer	172,041.11
• Waiomao Stream Sewer Replacement Rehabilitation (SMPR No. 24)	339,090.00
Total	<u>\$351,313,521.76</u>



***Sand Island Wastewater
Treatment Plant***

REFUSE OPERATING EXPENDITURES
2004 - 2005 FISCAL YEAR
EXPENSES/REVENUES

EXPENSES

Administration	\$5,440,262
Administration	\$1,306,358
Investigation and Inspection	\$237,321
Recycling	\$2,019,974
Glass Recycling	\$1,876,609
Refuse Collection	\$13,516,149
Honolulu	\$8,119,427
Rural	\$5,396,722
Refuse Disposal	\$91,325,612
Maintenance and Waste Diversion	\$962,779
Landfill	\$5,928,456
Transfer	\$6,856,129
H-POWER	\$77,578,248
TOTAL EXPENSES	\$110,282,023

REVENUES

Refuse Small Business Collection	\$514,678
Refuse Disposal	\$9,924,935
H-POWER Disposal Fees	\$35,877,718
H-POWER Electricity Sales	\$32,483,005
Recycling Surcharge	\$4,587,175

OPERATIONAL DATA

July 1, 2004 to June 30, 2005

Collection	368,288 tons
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Disposal:

	TONS DELIVERED	
H-POWER	623,272	616,687
Waimanalo Gulch Landfill	329,431	
Municipal Solid Waste (MSW)		
H-POWER		
Residue	94,580	
Unacceptable MSW	7,880	
Ash (wet weight)	99,731	

Transfer:

Tons Transferred

Convenience Centers	28,420
Kapaa Transfer Station	100,646
Kawailoa Transfer Station	16,225
Keahi Transfer Station	147,213

Recycling:

Tons Recycled

Office Paper	356
Mixed Paper	9,581
(newspaper, cardboard, color-ledger, white-ledger, computer)	
Mixed Containers	2,328
(glass, aluminum, plastic)	
Green Waste	32,151
Tires	771
Scrap Metal	4,164

H-POWER

Ferrous	16,800
Non-ferrous	1,562